I²C Temperature Sensor

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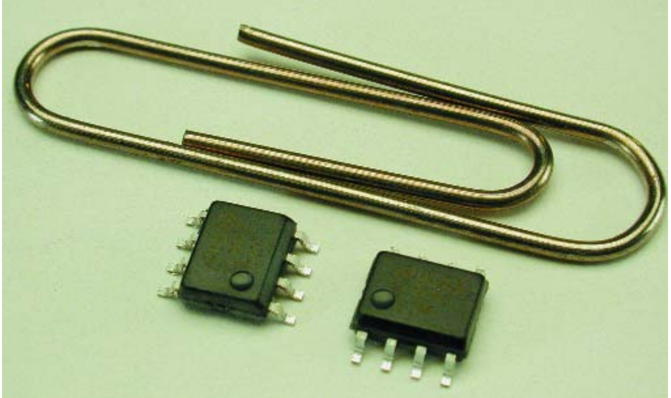
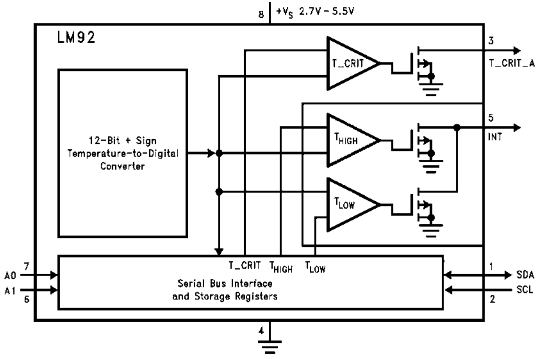
In the July/August issue of 1998 we introduced the LM75, a 9-bit temperature sensor. Since then, the same company (National Semiconductor) has made a 13-bit version available with part number LM76. The resolution has become 0.0625 (!) degrees. The component has an absolute accuracy between 0.5 and 2.5 degrees, depending on the type. It is made available for use with supply voltages of 5V or 3.3V.

Apart from the LM76, the company has introduced a new part: the LM92, of which the internal block diagram is shown here. This sensor has the same properties as the LM76, but has the big advantage that it works with any supply voltage between 2.65V en 5.5V

Both the LM76 and the LM92 fit on the PCB which we designed for the 'old' LM75 and which we again have reproduced here. The only difference is that pin 5 is no longer an I²C address input, but an interrupt-output. So it is still possible to use the old PCB for the experiments, but remember that jumper JP3 should never be closed. R5 is the pull-up resistor for the interrupt and can stay where it is.

As far as we are aware, no new version of the software





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is available, so you will have to write your own routines. The interrupt output becomes active-low when the temperature goes outside the programmed limits (above the highest or below the lowest). The T-Crit output goes Low when the temperature exceeds the programmed limit. All limits can be easily programmed via the I^{2}C bus.

A datasheet with full details on the LM92 can be found on the Internet site of National Semiconductor: http://www.national.com

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